

Appl. No. 10/677,399
Filed: 10/01/2003
Atty Dkt: HM-87423
Amendment "B" in Response to 12/17/2004
Office Action

Swiatek, Robert P., Patent Examiner
Art Unit 3643
Title: ELECTRIC FISH BARRIER FOR WATER INTAKES
AT VARYING DEPTHS

MARKED-UP VERSION OF AMENDMENTS TO THE CLAIMS

This listing of claims below will replace all prior versions, and listings, of claims in the application:

1 - 31 (Cancelled)

32. (Currently amended) ~~The~~ An electronic barrier ~~of claim 31~~ positioned in a body of water for governing the motion of fish in the water comprising:

a first array of vertically-oriented, adjacent electrode structures;

a second array of vertically-oriented, adjacent electrode structures, the second array spaced apart from first array; and,

a voltage source for creating a voltage potential between the first array and the second array,

wherein ~~the~~ each electrode structure comprises

a pipe having a top end and a bottom end;

a first insulative sleeve surrounding at least a portion of the pipe adjacent the top end;

a conductive sleeve surrounding a portion of the first insulative sleeve;

and,

a second insulative sleeve surrounding a portion of the conductive sleeve, the exposed portion of the conductive sleeve forming ~~the~~ a conductive portion.

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33. (Previously presented) The electrode structure of claim 32 wherein the pipe is filled with concrete.

34. (Cancelled)

35. (Currently amended) An electronic barrier for governing the motion of fish in a body of water, the body of water having water flowing into a water ~~discharge~~ intake comprising:

a first array of vertically-oriented, adjacent electrode structures, the first array positioned in front of the water ~~discharge~~ intake;

a second array of vertically-oriented, adjacent electrode structures, each of the electrode structures in second array having a second voltage, the second array positioned in front of the water ~~discharge~~ intake, and spaced apart from first array, where each electrode structure includes a conductive portion and a first insulating portion selectively forming a voltage gradient in front of the water intake; and,

a voltage source for creating a voltage potential between the first array and the second array.

36. (Cancelled)

37. (Cancelled)

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38. (Currently amended) The electronic barrier of claim 35 wherein each electrode structure includes a ~~conductive portion and a~~ support portion.

39. (Previously presented) The electronic barrier of claim 38 wherein the conductive portion surrounds at least part of the support portion.

40. (Currently amended) The electronic barrier of claim 39 wherein ~~the electrode structure comprises:~~

the support portion comprises a pipe having a top end and a bottom end;
the first insulting portion comprises a first insulative sleeve surrounding at least a portion of the pipe adjacent the top end;
the conductive portion comprises a conductive sleeve surrounding a portion of the first insulative sleeve; and,
further comprising a second insulating portion comprising a second insulative sleeve surrounding a portion of the conductive sleeve, the exposed portion of the conductive sleeve selectively forming the voltage gradient ~~conductive portion~~.

41. (Previously presented) The electrode barrier of claim 40 wherein the pipe is filled with concrete.

42 - 44 (Cancelled)

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45. (Currently amended) A method for governing the motion of a fish in a body of water, the body of water having water flowing into a water ~~discharge~~ intake comprising:

generating a voltage gradient in the body of water by creating a first voltage potential in a first array of vertically-oriented, adjacent electrode structures, the first array positioned in front of the water ~~discharge~~ intake and creating a second voltage potential, different than the first voltage potential, in a second array of vertically-oriented, adjacent electrode structures, the second array positioned in front of the water ~~discharge~~ intake, and spaced apart from the first array, where each electrode structure includes a conductive portion and a first insulating portion selectively forming a voltage gradient in front of the water intake.

46. (Previously presented) The method of claim 45 wherein a least a portion of the voltage gradient is contiguous around the first and second arrays.

47. (Cancelled)

48. (New) The electronic barrier of claim 35 wherein the electrode structures in the first array define a first plane and the electrode structures in the second array define a second plane.

49. (New) The electronic barrier of claim 48 wherein first and second planes are oriented perpendicularly to the flow of the water.

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50. (New) The electronic barrier of claim 49 wherein the first plane is spaced approximately six meters from the second plane.